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far as I am aware, the only additions to systematic bryology in the way of new species that he made. In fact he was rather conservative in his views of species-making, being averse to divisions along lines of minute distinction. In his explanatory note in connection with *D. Bonjeani* in Hedwigia, he says; "I have not deemed it worth while to describe the forms of *D. palustre*, since they are connected with the swamp forms of *D. scoparium*. If one did this he would be able to rival the lists of individual sphagna." He is contented with a diagrammatic scheme showing the relationship of his three varieties and others of American or European origin, with *D. scoparium*, *D. Bonjeani* and *D. undulatum*.

Aside from the interest in this little volume to me as a helpful companion in the familiar collecting ground of my home region, as well as to some extent in the neighboring state of Wisconsin, I prize it also as showing that Prof. Barnes was deemed worthy of association in the elaboration of Röll's collection of mosses with some of the most distinguished contemporary bryologists of Europe.

Chicago, Ill , May, 1910.

MOSSES OF COOK COUNTY, ILLINOIS.

BY WILLIAM WIRT CALKINS.

The following species of mosses growing within a radius of ten to twenty-two miles from Chicago have been collected by the writer during the last two years. The surface of Cook County being mainly prairie lands, cut through here and there by small streams or creeks, is not especially adapted to the growth of mosses; however, narrow belts of timber border the water courses, and in several localities the silurian limestone outcroppings afford congenial substrata for the propagation of some species, as, also, of several species of lichens. On the Lake Michigan shore, north of Chicago twenty-two miles, high bluffs of clay extend for several miles; these are from eighty to one hundred feet in height, are clothed with various trees, shrubs and grasses, and slope off rather abruptly to the shore. A number of ravines have been cut by water down through the bluffs and these sustain a primeval forest growth. Many rare plants are peculiar to these habitats and do not occur inland. The conditions here are favorable to mosses. The writer has not thus far explored fully the localities named and probably many other species than those named herein will be found. My friend, E. J. Hill, so well known as an eminent botanist, estimates the Cook County species of mosses at about fifty. It will be seen that I have located that number. My excuse for publishing the list now is, that I believe no enumeration has ever been made, hence, that my list will be of some value, and locally at least, call attention to this branch of our flora. I being only an amateur in the study of mosses, have had all species determined by competent authorities in order to give more value to the paper. It gives me pleasure to state my sense of obligation to the following; Mrs. Annie Morrill Smith; Miss Edith A. Warner; Mrs. Elizabeth M. Dunham; Miss Alice L. Crockett; Mrs. B. J. Handy; Prof. E. B. Chamberlain; Prof. E. J. Hill; Mr. C. C. Kingman; Rev. H. Dupret; Dr. Le Roy Andrews; Prof. N. L. T. Nelson; Mr. F. E. McDonald and Dr. Brenckle.

1. *Hypnum aduncan* Hedw.
Abundant in ditches and in woods, on earth. Berwyn, collected June 17, 1908.
2. *Hypnum Boscii* Schw.
On old logs in ravine at Glencoe on lake shore, July, 1909. So far not common.
3. *Hypnum Haldanianum* Grev.
On clayey substrata in ravine. Glencoe, July, 1909. Abundant.
4. *Hypnum hispidulum* Brid.
In clayey soil in ravine, Glencoe, July, 1909. Abundant.
5. *Sphagnum compactum* DC.
Collected in low swampy woods near Berwyn from July to Sept., 1907-8-9; in fruit, abundant, and an elegant species. No other locality known to me.
6. *Sphagnum acutifolium* Warns. var. *Schimperi* Warns.
The var. *viride* appears to be the same. Locality the same as No. 5, but less common, only one clump being found last year. Not seen in fruit.
7. *Ceratodon purpureus* (L.) Brid.
On sandy soil, abundant everywhere from May to August.
8. *Amblystegium Kochii* Schimp.
On earth, border of woods. Berwyn, May 23, 1908. Not abundant.
9. *Amblystegium serpens* (L.) B. & S.
Abundant throughout, on old logs in woods and very fine. Glencoe, etc., July, 1909.
10. *Amblystegium varium* (Hedw.) Lindb.
On soil, Berwyn and the "Sag." Substrata Trenton limestone. Collected from May to Sept. 1909.
11. *Amblystegium confervoides* B. & S.
Super saxum calcareum, collected at "Sag.," Sept. 9, 1909.
12. *Brachythecium salebrosum* (Hoffm.) B. & S.
On decayed logs, Glencoe and Berwyn. Abundant, July to Nov. 1908-9.
13. *Brachythecium oxycladon* (Brid.) B. & S.
On old logs, Glencoe, July, 1909.
14. *Brachythecium oxycladon* var. *dentatum* (L.) Gr.
On decayed log, Glencoe, July, 1909. Scarce.
15. *Brachythecium acuminatum* (Hedw.) Kindb.
On old logs, Glencoe, Berwyn, July, 1909. Abundant.
16. *Thuidium recognitum* (Hedw.) Lindb.
On clay substrata in ravine, Glencoe, Berwyn, May, July, 1909. Very abundant.
17. *Thuidium delicatulum* (L.) Mitt.
On decayed logs at Glencoe. Abundant in Nov. 1908-9.

18. *Climacium Kindbergii*, R. & C.
On old logs in ravine at Glencoe, not abundant. Oct. 1908.
19. *Hylocomium triquetrum* B. & S.
On decayed logs in ravine, Glencoe, Oct. 1908.
20. *Weisia viridula* (L.) Hedw.
On poor soil around grass roots, border of woods, near Berwyn.
Collected May 14, 1908. So far not found elsewhere.
21. *Funaria hygrometrica* (L.) Sibth.
On soil in meadow, also on ash deposits. June 17, 1909. Abundant.
22. *Ditrichum pallidum* Sulliv.
On clay soil in Oak barrens, Berwyn, June 15, 1908. Not abundant.
23. *Pohlia nutans*, Lindb.
In open oak woods at roots of trees, Berwyn, June 18, 1909. Abundant.
24. *Physcomitrium turbinatum* (Mx.) Brid.
On earth throughout, abundant and fine. Collected June, 1908-9.
25. *Dicranella heteromalla* (L.) Schimp.
On sandy, clayey soil in open oak woods near Berwyn. Found around oaks and often intermixed with *Leucobryum glaucum*. I have never seen this in any other locality. Quite abundant.
26. *Dicranella varia* (Hedw.) Schimp.
This elegant species is abundant at Glencoe on clay bluffs facing the lake and grows hidden among and around grass-roots. Also, intermixed with this will be found Nos. 41 and 42. All these species have been examined critically by three of our most eminent bryologists. Collected in October, 1909.
27. *Bartramia pomiformis* (L.) Hedw.
On old log in ravine at Glencoe. So far but little found. Collected Nov. 2, 1908.
28. *Aulacomnium palustre* Schw.
On barren clay soil in open oak woods, Berwyn. Abundant. May and June, 1909.
29. *Philonotis fontana* (L.) Brid.
Found around grass-roots on clay bluffs at Kenilworth. Exposure to the lake direct, and the species seems to be confined to about one rod in length. Not found elsewhere. Collected in July, 1908-9.
30. *Anomodon attenuatus* (Schreb.) Huebn.
On decayed logs and on earth in ravines at Glencoe in Nov. and July, 1908. Abundant.
31. *Mnium cuspidatum* Hedw.
Abundant on clayey soil, sides of ravines at Glencoe, also found at Berwyn. (= *M. sylvaticum* Lindb.).
32. *Eurhynchium strigosum* (Hoffm.) B. & S.
On old logs in ravine, Glencoe. Collected Nov. 1908. Also in woods near Berwyn.

33. *Eurhynchium hians* (Hedw.) Jaer. & Sauer.
On decayed log at Glencoe, October, 1909.
34. *Leskea polycarpa* Ehrh.
On *Salix nigra*, Berwyn, intermixed with other species. Also rarely found at "Sag," twenty-two miles south. Dupret, det. Collected July, 1909.
35. *Leskea gracilescens* Hedw.
On bark of living elm at Glencoe, rare. Collected July, 1909.
36. *Leskea obscura* Hedw.
Abundant on *Salix nigra*, Berwyn. Collected from June to August, 1908-9. These three species of *Leskea* have caused my correspondents some trouble to determine, No. 36 being called as above, but a depauperate form.
37. *Polytrichum commune* L.
On wet, marshy ground amid shrubs of *Vaccinium*, *Gaylussacia*, *Pyrus*, and matted in with abundant *Drosera* and *Sphagnum*s. Berwyn. Collected in May and July, 1908-9.
38. *Polytrichum commune* var. *uliginosum*, Huebn.
In same locality as the preceding species.
39. *Polytrichum Ohioense* R. & C.
On poor clay soil in Oak Barrens, Berwyn. Very abundant.
40. *Platygyrium repens* (Brid.) B. & S.
On clayey soil in ravine at Glencoe. Collected July 9, 1909. Scarce so far.
41. *Barbula unguiculata* (Huds.) Hedw.
On clay bluff at Glencoe, growing hidden around grass-roots; confined to limited space. Collected in July and October, 1909.
42. *Burbula fallax* Hedw.
Habitat same as that of No. 26. Glencoe, intermixed with the *Dicranella varia* and probably abundant detached. Oct. 1909.
43. *Bryum caespiticium* L.
Occurs at "Sag." Super saxum calcareum; also near Berwyn, same substrata. Can be called rare here.
44. *Thelia asprella* (Sch.) Sulliv.
On *Ulmus*, base of tree in ravine at Glencoe. Rare thus far. Collected Nov. 2, 1908.
45. *Leucobryum glaucum* Sch. var. *albidum* Brid.
On clayey, sandy soil in Oak Barrens near Berwyn. Have never seen it in fruit. *Dicranella* and *Polytrichum* intermixed slightly. There are acres of it. Collected from April to Nov. 1909.
46. *Catharina angustata* Brid.
On sandy poor soil, in abundance near Berwyn. Collected Sept., Oct. 1909.

47. *Rhynchostegium serrulatum* (Hedw.) B. & S.
Super saxum calcareum at "Sag." Sept. 1909. Also at Glencoe on fallen log, July, 1909. Rather common.
48. *Orthotrichum strangulatum* Beauv.
On *Salix nigra* trees in several localities in Cook County. Collected by E. J. Hill—not as yet by myself here.
49. *Entodon seductrix* (Hedw.) C. Müll.
Collected July, Sept. 1909, on rotten log near Berwyn; also at Glencoe and "Sag."
50. *Amblystegium orthocladon* Beauv.
On old logs in ravine. Glencoe. Collected May 24, 1910. Det. Dupret.
51. *Hypnum chrysophyllum* Brid.
On old log. Glencoe. Collected May 24, 1910. Det. Dupret.
Berwyn, Illinois.

**ADDITIONS TO THE LICHEN-FLORA OF SOUTHERN
CALIFORNIA, No. 4.**

BY H. E. HASSE.

RAMALINA EVERNOIDES Nyl.

Thallus compressed, suberect or subpendulous, light straw color above, paler beneath, both surfaces flattened reticulate lacunose, becoming smoother above, from a broad base soon dividing into lobes that are irregularly sinuate and lacinate in upper part, the laciniae often marginally sorediate torn, 1 to 2.75 cm. high, the cortical hyphae are perpendicular to the thalline axis beneath which is the well developed layer of longitudinal hyphae, containing the gonidia; no fruiting plants have been seen.

On shrubs at Point Loma near San Diego and also at Newport, Orange County.

LECIDEA (sect. *Biatora*) SANGUINEO-ATRA Th. Fr. *Biatora sanguineo-atra* (Fr.) Tuck. : Tuck. Syn. II, 21, 1888.

Thallus of medium thickness, light greenish-gray, pale green when moist, forming a coralloid-granular crust running over moss, the granules becoming dispersed at the periphery of the crust, KHO-; apothecia sessile, 0.5 to 1 mm. wide, disk flat, dark reddish brown and red-black, surrounded by a concolorous, obscure, entire proper margin that at last disappears and the disk then slightly convex; epithecium subcontinuous, light grayish-yellow; thecium pallid to nearly colorless, 68 μ to 96 μ high; paraphyses closely coherent, slightly thickened and faint yellow above; hypothecium sordid brownish, darker than the epithecium; asci clavate, reaching up to the epithecium, 8-spored; spores ellipsoid and oblong-ellipsoid, one or both ends acuminate, 8 μ to 17 μ long, 4.5 μ to 7 μ thick; Jod. stains the hemin. gel. blue then dark red-brown, no change with KHO except a slight darkening of the natural colors.

Some Lophozias of the Ventricosa Group. Illus. Annie Lorenz. 36, 37, 38, 39, 40, 41, 42, 43, 44, 45	Sullivant Moss Society Members. 20, 21, 22, 23, 24
Splachnobryum in Greenhouses. Illus. Elizabeth G. Britton. 116, 117, 118, 119	Sullivant Moss Society Notes. 46, 68, 87, 123
	The Typical Form and the Series of Forms. Dr. Julius Röhl. 77, 78, 79

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ERRATA

- Page 14, line 11, for *chrysophyllum* read *chrysophyllum*.
- Page 14, line 24, for *cillata* read *ciliata*
- Page 15, line 4, for *Splenalobus* read *Splenolobus*.
- Page, 28, line 7, for **Cetraria Californica** read CETRARIA CALIFORNICA.
- Page 54, line 7 from bottom for *Syhagnum* read *Sphagnum*.
- Page 54, line 10 for *roesanum* read *Roseanum*.
- Page 54, lines 19 and 20, for *Palaisia* read *Pylaisia*.
- Page 54, wherever Roell occurs read Röhl.
- Page 105, line 4, for *rosus* read *roseus*.
- Page 108, line 1, for *aduncan* read *aduncum*.
- Page 110, line 16 from bottom for *Burbula* read *Barbula*.